

US Daily: New Thinking on Fiscal Sustainability (Nicolae/Walker)

- Policymakers and economists have rethought old ideas about fiscal sustainability in recent years as interest rates have declined. In today's *Daily*, we recap a recent discussion of new approaches to assessing fiscal sustainability among leading macroeconomists.
- Many investors and policymakers are accustomed to thinking about fiscal sustainability in terms of the debt-to-GDP ratio, which will soon rise to the highest level in US history. In a recent study, Jason Furman and Lawrence Summers argue that a better measure of the debt burden is real interest expense as a share of GDP, which captures the cost of servicing the debt, adjusting for inflation. That measure is currently at a more historically normal level.
- Debt servicing costs are low at the moment in part because economic activity is still depressed and markets do not expect the Fed to normalize interest rates for a while. But even the further increases in yields that our interest rate strategists forecast would leave debt-servicing costs well within the normal historical range.
- The participants in the recent discussion identified two key risks to this mostly reassuring new view of fiscal sustainability. First, slowing the rise in debt servicing costs will likely require changes to entitlement spending, which under current law is projected to grow indefinitely as a share of GDP. Second, the neutral interest rate is quite uncertain in the long run, and a high debt-to-GDP ratio would amplify the fiscal cost of any surprise increase in interest rates.

Jan Hatzius

+1(212)902-0394 | jan.hatzius@gs.com Goldman Sachs & Co. LLC

Alec Phillins

+1(202)637-3746 | alec.phillips@gs.com Goldman Sachs & Co. LLC

David Mericle

+1(212)357-2619 | david.mericle@gs.com Goldman Sachs & Co. LLC

Spencer Hill, CFA

+1(212)357-7621 | spencer.hill@gs.com Goldman Sachs & Co. LLC

Daan Struyven

+1(212)357-4172 | daan.struyven@gs.com Goldman Sachs & Co. LLC

Joseph Briggs

+1(212)902-2163 | joseph.briggs@gs.com Goldman Sachs & Co. LLC

Blake Taylor

+1(202)637-3756 | blake.taylor@gs.com Goldman Sachs & Co. LLC

Ronnie Walker

+1(917)343-4543 | ronnie.walker@gs.com Goldman Sachs & Co. LLC

Laura Nicolae

+1(917)343-6594 | laura.nicolae@gs.com Goldman Sachs & Co. LLC

New Thinking on Fiscal Sustainability

Policymakers and economists have rethought old ideas about fiscal sustainability in recent years as interest rates have declined. In a recent discussion at the Brookings Institution, several leading macroeconomists—former Fed Chair Ben Bernanke, former IMF Chief Economists Olivier Blanchard and Ken Rogoff, former Council of Economic Advisers Chair Jason Furman, and former Treasury Secretary Lawrence Summers—debated new approaches to thinking about fiscal sustainability. In today's *Daily*, we review these new perspectives on the costs and risks of higher debt.

Many investors and policymakers are accustomed to thinking about fiscal sustainability in terms of the ratio of the US federal debt to GDP. As Exhibit 1 shows, the debt-to-GDP ratio rose above 100% last year and will soon surpass the post-World War II peak to reach the highest level in US history. Viewed from this perspective, the current fiscal situation looks guite worrisome.

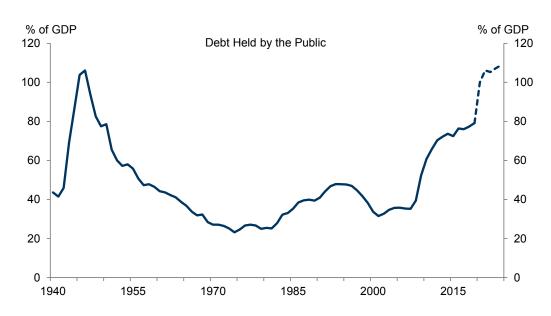


Exhibit 1: The US Debt-to-GDP Ratio Will Soon Reach the Highest Level in US History

Source: Office of Management and Budget, Goldman Sachs Global Investment Research

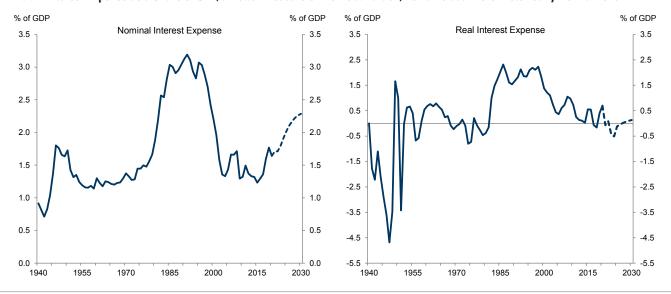
In a recent study, Furman and Summers argue that the debt-to-GDP ratio is a poor measure of the burden imposed by debt that exaggerates current fiscal risks.² They note that debt is a stock that can be repaid over time, while GDP is a flow for a single year. Dividing a stock by a flow in a single period ignores the future value of output. One could divide debt by another stock—the present value of all future output—but that is difficult to estimate and very sensitive to assumptions about future growth and interest rates.

[&]quot;Fiscal Policy Advice for Joe Biden and Congress," Brookings Institution Webinar, December 1, 2020.

² Jason Furman and Lawrence Summers, "A Reconsideration of Fiscal Policy in the Era of Low Interest Rates," 2020.

Instead, Furman and Summers argue, we should focus on the cost of servicing the debt as a share of GDP, which amounts to dividing a flow by a flow. A simple measure of this would be nominal interest expense as a share of nominal GDP, shown on the left of Exhibit 2, which captures the actual cash outflows required to maintain the current debt level in dollar terms. Furman and Summers recommend one further adjustment to better capture the true cost of bearing a given debt load: subtracting the stock of debt that is "inflated away" each year from the interest payments to account for the fact that inflation decreases the real value of the debt stock. This could be thought of as the net cash outflows required to maintain the current real value of the debt. This measure of real interest expense as a share of GDP is shown on the right of Exhibit 2.

Exhibit 2: Interest Expense as a Share of GDP, a Better Measure of the Debt Burden, Remains at a More Historically Normal Level



Source: Office of Management and Budget, Goldman Sachs Global Investment Research

These alternative measures give a very different perspective on fiscal sustainability than the debt-to-GDP ratio shown above, with both at historically normal or even low levels. The intuition is that while the level of the debt is historically high, average interest rates on Treasury debt are historically low, and multiplying them together implies roughly average interest expense as a share of GDP.

Of course, interest rates are low at the moment in part because the bond market judges that they will be low on average in the long run—that is, that the neutral rate or r* has declined significantly—but also in part because the economy is currently weak and the fed funds rate is at the effective lower bound and expected to stay low for a while. Our interest rate strategists expect yields to <u>rise</u> across the curve in coming years as the economy recovers quickly. Using their forecasts, we project how nominal and real interest expense as a share of GDP would evolve in the years ahead.

The dotted lines in Exhibit 2 show that the increase in interest rates we forecast would raise debt servicing costs over the next decade, but would still leave them within a normal historical range, assuming that the deficit eventually stabilizes. Specifically, we project that real interest expense will decline from less than 1% of GDP today to roughly 0% of GDP by 2030, assuming that the expansion continues until then and

interest rates gradually normalize to the Fed's estimate of the neutral rate. It declines because debt issued at a higher interest rate in the past matures and is replaced by new debt issuance at lower interest rates; somewhat higher future inflation also partially offsets the projected rise in nominal interest rates.

As the participants in the recent discussion note, even from the perspective of this new approach to assessing fiscal sustainability, there are still two key risks to longer-term fiscal sustainability.

First, as Rogoff emphasizes in a recent paper, traditional debt statistics mostly ignore massive future entitlement obligations, such as Social Security and Medicare, which are on an upward trajectory.³ Furman and Summers similarly note that their less concerned view of fiscal sustainability assumes that Social Security is reformed within the next 30 years, as scheduled under current law when the Social Security Administration's main trust fund is depleted.⁴

Second, the neutral interest rate is very difficult to predict in the longer run, and at more distant horizons it is therefore hard to know if interest rates will remain as low as they are today. Bernanke, Rogoff, and Blanchard argue that some potential structural changes—changing demographics, expanded social insurance and slower savings growth in emerging markets, or greater investment demand for green technology—could raise the neutral rate in the future. If so, a high debt-to-GDP ratio would amplify the impact of any surprise increase in interest rates on debt servicing costs as a share of GDP.

Even if the neutral rate rises, Summers argues that the federal government could raise taxes moderately to increase revenue by enough to meet the increase in interest expense. This is particularly true in the US because tax revenue is currently a smaller share of GDP than in most developed countries. The same is true of Japan, and this has been one factor that has reassured investors in its government debt, which is much larger as a share of GDP than in the US. Alternatively, the US could also reduce spending on health care — for which it spends a significantly larger share of GDP than most developed countries — to cover an increase in interest expense.

Laura Nicolae

Ronnie Walker

³ Kenneth Rogoff, "Falling Real Interest Rates, Rising Debt: A Free Lunch?" 2020. Rogoff argues that low market interest rates on advanced economy government debt reflect an assumption that governments would surely cut entitlement obligations, which are implicitly seen as "junior" debt, rather than default on "senior" sovereign debt obligations, but that this is less obvious than it appears.

⁴ "Fiscal Policy Advice for Joe Biden and Congress."

Disclosure Appendix

Reg AC

We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Daan Struyven, Joseph Briggs, Blake Taylor, Ronnie Walker and Laura Nicolae, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Disclosures

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. Australia: Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. Brazil: Disclosure information in relation to CVM Instruction 598 is available at https://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Instruction 598, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. Canada: Goldman Sachs Canada Inc. is an affiliate of The Goldman Sachs Group Inc. and therefore is included in the company specific disclosures relating to Goldman Sachs (as defined above). Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research report in Canada if and to the extent that Goldman Sachs Canada Inc. disseminates this research report to its clients. Hong Kong: Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. India: Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 951-A, Rational House, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Japan: See below. Korea: This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. New Zealand: Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. Russia: Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. Singapore: Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. Taiwan: This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. United Kingdom: Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union and United Kingdom: Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at https://www.gs.com/disclosures/europeanpolicy.html which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Ombudsman Goldman Sachs Brazil: 0800 727 5764 and / or ouvidoriagoldmansachs@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Ouvidoria Goldman Sachs Brasil: 0800 727 5764 e/ou ouvidoriagoldmansachs@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by either Goldman Sachs Canada Inc. or Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs (Brigapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

European Union: Goldman Sachs International authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, has approved this research in connection with its distribution in the European Union and United Kingdom.

Effective from the date of the United Kingdom's departure from the European Union and the European Economic Area ("Brexit Day") the following information with respect to distributing entities will apply:

Goldman Sachs International ("GSI"), authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: GSI, authorised by the PRA and regulated by the FCA and the PRA, disseminates research in the following jurisdictions within the European Economic Area: the Grand Duchy of Luxembourg, Italy, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Norway, the Republic of Finland, Portugal, the Republic of Cyprus and the Republic of Ireland; GS -Succursale de Paris (Paris branch) which, from Brexit Day, will be authorised by the French Autorité de contrôle prudentiel et de resolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de resolution and the Autorité des marches financiers ("AMF") disseminates research in France; GSI - Sucursal en España (Madrid branch) authorized in Spain by the Comisión Nacional del Mercado de Valores disseminates research in the Kingdom of Spain; GSI - Sweden Bankfilial (Stockholm branch) is authorized by the SFSA as a "third country branch" in accordance with Chapter 4, Section 4 of the Swedish Securities and Market Act (Sw. lag (2007:528) om värdepappersmarknaden) disseminates research in the Kingdom of Sweden; Goldman Sachs Bank Europe SE ("GSBE") is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research in the Federal Republic of Germany and those jurisdictions within the European Economic Area where GSI is not authorised to disseminate research and additionally, GSBE, Copenhagen Branch filial af GSBE, Tyskland, supervised by the Danish Financial Authority disseminates research in the Kingdom of Denmark; GSBE - Sucursal en España (Madrid branch) subject (to a limited extent) to local supervision by the Bank of Spain disseminates research in the Kingdom of Spain; GSBE - Succursale Italia (Milan branch) to the relevant applicable extent, subject to local supervision by the Bank of Italy (Banca d'Italia) and the Italian Companies and Exchange Commission (Commissione Nazionale per le Società e la Borsa "Consob") disseminates research in Italy; GSBE - Succursale de Paris (Paris branch), supervised by the AMF and by the ACPR disseminates research in France; and GSBE - Sweden Bankfilial (Stockholm branch), to a limited extent, subject to local supervision by the Swedish Financial Supervisory Authority (Finansinpektionen) disseminates research in the Kingdom of Sweden.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (https://www.sipc.org).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research, unless otherwise prohibited by regulation or Goldman Sachs policy.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is focused on investment themes across markets, industries and sectors. It does not attempt to distinguish between the prospects or performance of, or provide analysis of, individual companies within any industry or sector we describe.

Any trading recommendation in this research relating to an equity or credit security or securities within an industry or sector is reflective of the investment theme being discussed and is not a recommendation of any such security in isolation.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at https://www.theocc.com/about/publications/character-risks.jsp and

https://www.fiadocumentation.org/fia/regulatory-disclosures_1/fia-uniform-futures-and-options-on-futures-risk-disclosures-booklet-pdf-version-2018.

Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by the Global Investment Research division of GS may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to https://research.gs.com.

Disclosure information is also available at https://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.

© 2021 Goldman Sachs.

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of The Goldman Sachs Group, Inc.